REMARKS

Claims 1-28 are now presented for examination. Claims 1, 7-9, 17-19 and 26 have been amended. No new matter has been added.

Claims 1, 9, and 19 are independent.

In paragraph 2 of the Office Action, Claims 1-27 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent No. 6,104,712 (Robert et al.). Applicants believe that Robert et al. does not teach or suggest Applicants' claimed invention. Features of amended independent Claim 1 include "storing coverage zone area range data in a storage unit in at least one network switch in the communication system, *the coverage zone area range data defining the geographic scope of coverage* supported by each of the at least one network switches supporting a predefined coverage zone" and "determining at least a portion of a network path to the device based on the location data *and the coverage zone area range data*" (emphasis added). These features are not taught or suggested by Robert et al.

Applicant's invention advantageously provides a method and system which facilitates efficient routing of data packets even though at least one of the end points is mobile and can move, for example, from cell to cell. By storing coverage zone area range data, e.g. coordinate data for a geographic area of coverage of a network edge router, a relatively static routing table can be built and maintained. This is the case because the route table is based on non-mobile routers and their predefined geographic areas of coverage within the transport backbone of the network and not based on the mobile devices. In other words, the present invention establishes the packet routing table based on fixed geographic zones of coverage, encapsulating and routing packets to an end switch which supports a fixed geographic zone of coverage. See, for example,

specification at page 19, line 7 to page 20, line 9. In accordance with Applicants' invention, the route for a packet destined for a mobile device can be quickly determined through a simple table look-up based on the geographic zone the mobile device is in. Accordingly, the only reasonably dynamic data within Applicants' network is the location of the mobile device.

In contrast to Applicants' invention, Robert et al. is directed to a communication network having no traditional wireless network backbone. Robert et al. provides a network primarily composed of mobile devices in which the mobile devices themselves act as network switches, passing traffic from one mobile switch to another until the data has reached the terminating mobile node. See, e.g., col. 2, lines 22-40 and col. 5, lines 8-13. Because the switches are mobile and move from geographic place to geographic place, Robert's routing table constantly changes. The continuous nature of Robert et al.'s routing table updates adds inefficient overhead to the system both in terms of processing resources and bandwidth.

Although, as pointed out by the Examiner, Robert et al. provides for stationary databases storing certain aspects of routing information, Robert et al. does not teach or suggest network switches at the periphery of the stationary network backbone and does not teach or suggest any method or system which provides a reasonably static routing table through the storage of "coverage zone area range data . . . defining the geographic scope of coverage supported by each of the at least one network switches supporting a predefined coverage zone" as recited by Applicants in amended Claim 1.

Put simply, unlike Applicants' invention, Robert et al. does not teach or suggest that data for the geographic areas of coverage for network switches are stored or are used to "determine[e] at least a portion of a network path to the device based on the location data and the coverage

zone area range data." Robert et al. determines and updates routing information based only on the location of a mobile device and whether or not the mobile device is present within a geographic location because the mobile device itself is the router. In fact, Robert et al. teaches that network paths are based solely on the location data (see, for example, FIGS. 13-15). Because Robert et al. does not teach the storage of coverage zone area range data for network switches, Robert et al. does not teach or suggest determining any portion of a network path based on the location data for the mobile device "and the coverage zone" as recited in amended independent Claim 1.

The Office Action cites Col. 5, lines 34-45 and col. 18, lines 38-53 as teaching the use of coverage zones. Applicants respectfully disagree. These sections of Robert et al. describe a mobile migratory access node ("MAN") that is present *within* a predefined geographic area which generates packet routes and disseminates routing information to other mobile MANs to enable packets "to flow end-to-end over the network.. Col. 18, line 48. This constant routing information updating leads to the inefficiencies described above. Nothing in these sections of Robert et al. teaches or suggests that geographic coverage data in the form of coverage zone area range data is stored by a MAN or any other device with Robert et al.'s system or that any routing efficiencies are gained.

Applicants believe that amended Claim 1 is patentable for at least these reasons and respectfully requests the withdrawal of the rejection of this claim.

Features of amended independent Claim 9 include a "at least one first router supporting a predefined coverage zone, the at least one first router having at least one communication interface receiving location data from the mobile device, the *predefined coverage zone*

comprising coverage zone area range data defining the geographic scope of coverage for mobile devices supportable by the at least one first router", "at least one second router having: *a storage unit storing coverage zone area range data of each of the first routers*" and "a central processing unit . . . determining at least a portion of a network path to the device based on the location data and the stored coverage zone area range data" (emphasis added). These features are neither taught nor suggested by Robert et al.

As noted above with respect to Claim 1, Robert et al. does not teach the storage or use of coverage zone area range data. As such, Robert et al. does not teach or suggest first router within a predefined coverage zone "comprising coverage zone area range data defining the geographic scope of coverage". Robert et al. makes no mention of the storage of any data (such as geographic coordinate data) for the geographic boundaries of coverage for a network router. Further, Robert et al. does not teach or suggest that coverage zone area range data relating to each of the first routers is stored in second routers. Finally, because the concepts of coverage zone data and establishing a routing table based on this essentially static data are neither taught nor suggested by Robert et al., the central processing unit in Robert et al.'s packet routing devices does not determine at least a portion of the network path to the mobile device based in any way on stored coverage zone area range data. For at least these reasons, amended independent Claim 9 is believed patentable. Accordingly, Applicants respectfully request the withdrawal of the rejection of this claim.

Features of amended independent Claim 19 include at least one communication interface on the network switch that receives "coverage zone area range data for at least one network switch supporting a predefined coverage zone within the communication network, the

coverage zone area range data defining the geographic scope of coverage for mobile devices supported by each respective network switch within a predefined coverage zone" and "a central processing unit, the central processing unit . . . determining at least a portion *of a network path to the device based on the location data and the* coverage zone area range data" (emphasis added). As discussed above with respect to amended independent Claims 1 and 9, Robert et al. does not teach the use of coverage zone area range data defining the geographic scope of coverage for mobile devices supported by network switches and does not determine network paths based on this coverage zone information.

In contrast to Applicants' claimed invention, Robert et al's network switches are mobile devices (MANs) which receive dynamic routing information from other mobile devices. These MANs do not rely on relatively static geographic coverage data such as geographic coordinates of coverage for immobile edge routers to establish routing tables to efficiently determine a path through the network to the destination device. This is the case because, unlike Applicants' claimed invention, Robert et al's MANs, when acting like routers, move around, significantly changing routes through the core of the network as the mobile devices move into and out of geographic zones. For example, a geographic area in Robert et al. may have no routing coverage if a MAN is not present in the zone. As such, Robert et al. must account for this possibility, significantly increasing the complexity and latency of the system. Col. 18, lines 50-55. Such is not the case with Applicants' invention. Because routers don't move from geographic location to geographic location, coverage zone range area data is fixed for an edge router, thereby simplifying the routing process and allowing Applicants' inventive system to support such low latency features as voice over IP (VoIP), streaming multimedia, etc.

Accordingly, Applicants believe independent Claim 19, as amended, is patentable over Robert et al. and respectfully request the withdrawal of the rejection of this claim.

Claims 7, 17 and 26 were also rejected as anticipated by Robert et al. Applicants' note that these dependant claims are directed toward coverage zones and coverage zone area range data. As noted above, Robert et al. does not teach or suggest use of coverage zone area range data in which a network switch is defined, in part, by the predetermined geographic region that it supports. Further Claims 8, 18 and 27 depend from Claims 7, 17 and 26, respectively. These claims are likewise allowable by virtue of Robert et al.'s failing to teach or suggest the use of coverage zones.

Dependent Claims 3, 6, 11, 16, 21 and 25 were rejected on page 13 of the Office Action the ground that "the Robert reference teaches the location data is comprised of a routing domain." The Office Action cites those general portions of Robert et al. which describe data packet contents and packet routing content and information. However, these portions of Robert et al. relate to defining and establishing a route through the network, and do not teach or suggest that the location of a mobile device can or should be defined by its inclusion within a "routing domain". In general, a routing domain is an autonomous subset of a network which makes its own routing decisions. By way of example, routing protocols such as the Border Gateway Protocol (BGP) in which network subsets are connected by gateways employ routing domains. Routing decisions are made separately within each network subset and are not shared across gateways. Robert does not in any way teach or suggest that the location of a MAN is defined within its inclusion of a routing domain or that routing domains can or should be used in

conjunction with a network supporting mobile devices to identify the location of the devices. Rather, Robert et al's MANs are established as autonomous units within an area defined by an address for use in establishing a route to or through the portion of the network in which the MAN exists. As recited by Applicants in Claims 3, 6, 11, 16, 21 and 25, the location of *mobile devices* in Applicants' system can be defined by a routing domain. See, for example, FIGS 10-15 and accompanying description in Applicants' specification. Accordingly, Claims 3, 6, 11, 16, 21 and 25 are patentable over Robert et al.

Claim 28 was rejected in paragraph 4 of the Office Action under 35 U.S.C. § 103(a) as obvious from Robert et al. in view of U.S. Patent No. 6,496,189 (Yaron et al.). Claim 28 is believed patentable by virtue of its dependency on independent Claim 19, whose patentability is discussed above.

Claims 2-8, 10-18 and 20-28 are each dependent either directly or indirectly from one or another of independent Claims 1, 9 and 19, discussed above. These claims recite additional limitations which, in conformity with the features of their corresponding independent claim, are not disclosed or suggested by the art of record. The dependent claims are therefore believed patentable. However, the individual reconsideration of the patentability of each claim on it own merits is respectfully requested.

For all of the above reasons, the claim objections are believed to have been overcome placing Claims 1-28 in condition for allowance, and reconsideration and allowance thereof is respectfully requested.

The Examiner is encouraged to telephone the undersigned to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

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